Industrial FINISHING

Reg. U. S. Pat. Off.

Devoted to Product Finishing in the Factory

Vol. XI, No. 6 | APRIL, 1935 | $2.00 a Year

Contents of this Issue

Letters from Readers of "Industrial Finishing" 4
Gold and Silver Bronzes 9
Air-Conditioned Finishing Rooms—II 13
Metal Container Finishing 18
Finish Foundation for Bare and Plated Steel 22
Do You Buy or Sell or Mix or Use Wood Stains and Fillers 30
Dip Finishing 36
What's New 39
Questions; Answers 46
Editorial 52

National Copper Paint Co. Formed in Chicago 12
Spray Equipment Book 12
Electro Platers' Society 12
Monsanto Acquires Atlantic Chemical Co. 16
Tremco Opens New York Office 20
Makes Paint Stick to Galvanized Iron 20
Handling Materials and Supplies 24
Industrial Equipment General Catalog 26
Alsop Appoints Ohio Representative 26
Mixer-Filter Bulletin 34
Waterlox Book of Customers' Letters 51
DuPont Appoints Western Regional Manager 54
Spring Furniture Show in Chicago, May 1 to 8 54
Sixty Years of Progress 55
Portable Cleaning Machine 55
Devoe & Raynolds Expansion 55

"Classified Advertising" Section 55
Advertisers' Index 56

Published by
Practical Publications, Inc., 222 East Ohio St., Indianapolis, Indiana

Eastern Office: C. A. Larson, Mgr., 254 West 31st Street, New York City; Phone, Penna. 6-9049

Letters from Readers of "Industrial Finishing"

The names and addresses of firms or individuals whose letters and inquiries appear in this department may be had by writing this office, or letters addressed to them in care of this office will be forwarded promptly.—The Editor.

Alkali-Proof Finish for Stainless Steel

Would you kindly send us the address of the Graves Co., as given on page 4 of March issue of INDUSTRIAL FINISHING, under the heading "Machinery Enamel", relative to an enamel resistant to alkali washing compounds? We are trying to find such an enamel suitable for applying to stainless steel.—W. P. N. Co. (Name Plates & Novelties).

The Graves Co. is located at 150th St. & Calumet Ave., Hammond, Ind.

Cotton Flocks

Some time ago I saw something in INDUSTRIAL FINISHING about cotton flocks. My copy has been misplaced and I am anxious to obtain samples of cotton flocks. Will you kindly forward this letter to the company that manufactures it?—S. B. J. (Polishing Cream).

Bluing Range Tops

There appeared in your INDUSTRIAL FINISHING magazine an article on bluing range tops. If you still have a copy of this article, we would be pleased to have you send us one.—J. Foundry Co. (Stove Division).

EDITOR'S NOTE: We don't seem to have any record of this. Does any reader remember it?

Letter from Japan

To the Editor & Publisher of "Industrial Finishing"; Pyroxylin lacquer production in Japan.

1) This industry is steadily developing in recent years; the statistics of production published by our Government are as follows:

In 1931	
605,906 Litre	737,211 Y
616,615 Kg.	1,009,600
In 1932	
687,475 Litre	741,808
1,108,827 Kg.	1,601,100
In 1933	
1,043,546 Litre	984,030
1,312,228 Kg.	1,716,972

2) Leading manufacturers: Kwansai Paint Co., Nippon Kwayaku Co., Nippon Paint Co., Asahi Lacquer Co., and 20 other firms.

3) Cellulose acetate lacquer is not fully developed, but is being tried on a small scale by a few firms. In future it will be made in a great measure.

4) Albertol resin varnishes: Some qualities made by paint firms—Nippon Paint Co., etc.

5) Lacquer foreign trade and market: Home market satisfied with home-made varnishes; imported lacquers are gradually driven out . . . some quantities are exported for South Seas in recent years.

6) Varnish Painters' Association organized: Tokyo and Osaka Varnish Painters each formed an association for the purpose of studying and regulating their business affairs.

—Yours faithfully, R. Sekido, President, The Nippon Celluloid Jihosha (Review).

Nails to Hold Turnings Being Dipped

We are in the market for 2½-in. or longer high-tempered, long, tapered nails or pins for dipping small wood turnings. Can you tell us if such an

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item is a stock item with any manufacturer, and if so, who carries it? —S. J. Co. (Lumber & Mfg.).

Wash Wiping Rags?

I am interested in washing and cleaning the wiping rags used in our finishing room. At one time I had a formula for washing these rags in an ordinary washing machine. The cost of rags in our plant here is very great, and I would like to start washing our old rags. If you have a formula for this purpose, would you be kind enough to pass the information on to me?—S. C. T. (Industrial Engineer).

Spray Material for Shoes in Process

We are anxious to get in touch with a manufacturer in America whom we understand is producing a special material for spraying on light colored shoes, etc. We understand that the object of the material is to preserve the shoe from dirt, hand marks, etc., while in the process of manufacture, and that the protective material can be brushed off when the shoe is in the final stage of manufacture. We should be very glad to hear if you can furnish us with the name and address of the manufacturers who are marketing this material. — Air Industrial Developments, Ltd., Shenstone, ENGLAND.

Chemical to Harden Wood?

On page 46 of your February, 1935, issue there is an inquiry from N. S. R. & Co., who wish to know of a chemical that can be used to harden lumber. If there is any such product, we should be very interested to hear about it.—J. N. Co. (Handles, Curtain Poles, Dowels).

Decorative Finishes Wanted in Australia

On looking through your January issue for 1935, under "Developments During 1934," we are interested in two lines, i. e., Silver Metaluster Enamel and Morocco Finish, and we would like for you, on our behalf to get in touch with the manufacturers and ask them to send us samples, full particulars, and prices for above lines; also find out whether we could handle same in Australia. — G. E. Crane & Sons, Ltd., Sydney, N. S. W. AUSTRALIA.

Centrifugal Finishing

We are very much interested in the article on page 33 of March, 1935, issue, entitled "Centrifugal Finishing for Small Parts." Would appreciate your help in getting in touch with the manufacturer of the machine, as well as the Schenectady Varnish Co., who probably put out enamels and japans suitable for small work to be finished in a machine of this kind.—Q. E. Co. (Enameling & Plating).

Big Paint Outfits

We would appreciate it very much if you would give us the names and addresses of three or four large manufacturers of paints in the United States which specialize in selling paint to the manufacturers of all kinds of finished articles. — F. C. Corp.

Screen Process Outfits

We have had numerous requests for screen processing outfits in which the motor car dealers can apply their own names to tire covers. These outfits consist of screen, paint and applicator. Can you inform us where these can be obtained? We are interested in getting this as a representative, or if this is not possible, can you tell us more about the process and where products for manufacturing can be obtained?—R. C. J. (Direct Appeal Advertising).

Want Transparent Mirrors

With reference to the February copy of INDUSTRIAL FINISHING, we are interested in a paragraph relating to Transparent Mirrors which appeared in same, see page 6. We are interested to know whether you can give us any information relating to this inquiry, i. e., as to whether you were able to put the people making the inquiry into touch with the names and addresses of firms manufacturing such mirrors. If so, or if you could give us any enlightening information as to the details of the

(Continued on page 38)

Gold and Silver Bronzes

What's in these and other bronze powder finishes, and how to select, order, store, mix, apply, polish and preserve them . . . their various colors, new uses, trends and decorative possibilities

by Herman Kahn
H. Kahn & Co.

EDITOR'S NOTE—In order to obtain some authentic and practical information about various bronze powder finishes, we prepared a sheet of typical questions which users and prospective users are asking, and mailed copies to a few of the leading manufacturers of these materials. Mr. Herman Kahn of the H. Kahn & Co., Philadelphia, Pa., replied promptly and in some detail, revealing information which, we believe, is both interesting and valuable to the industrial finishing trade. The questions, as we asked them, and the answers as Mr. Kahn dictated them, are as follows:

1. Is the metallic powder used in these paints actually metallic gold or silver, and if so what is its approximate degree of purity? Or is it always or generally a gold or silver alloy especially prepared to serve as a paint, and containing just enough of the precious metal to give it the color or appearance of the genuine metal?

Bronze powder, such as gold, is made up of copper ingots, with a certain amount of spelter and zinc alloy. After the proper procedure of same in hammered presses, they are brought to a fine powder which is polished in a brushing machine with steric acid; the longer they are in the brushing machine the greater the luster. This material contains none of the precious metals whatsoever.

2. What's the difference between good or high-quality gold or silver bronze powders and poor or cheap, low-quality powders? What tests, if any, can the buyer use to determine whether he's getting high-quality or low-quality gold or silver powders?

There are several kinds and grades of gold bronze powder, as well as aluminum and silver bronze powders. The grade which is used for printing and striping is somewhat of a different manufacture, considerably finer in mesh and more expensive. The higher polished powders are used for painting and decorating purposes. Colored bronze powders, such as blue, green, violet, etc., are usually made on a gold bronze powder base and are colored with analine dyes, but quite often the

aluminum is used for a base, but in the latter case it is considerably more expensive to make these colored bronze powders.

3. Should the powder be kept (when not in use) in tightly covered cans or containers (what kind of containers are preferred?) in a clean dry place?

It is not necessary to keep bronze powders in a tightly covered container when they are in a dry form, but they should be kept in a dry and tightly covered place when they are mixed with lacquer or varnish type vehicle.

4. Is the liquid used as a vehicle for these metallic powders of importance? Is it necessary or desirable to purchase the liquid from the supplier of the metallic powders, or can the user mix up the powders in a thin clear varnish or thin clear lacquer or lacquer thinner, or thin clear synthetic liquid finish?

It is quite important in regard to the vehicle which is used for the different purposes. It is not absolutely necessary to purchase the vehicle from the manufacturer or jobber of metallic powders, but quite often they have a vehicle which is more suitable, and they understand the mixture of this vehicle better. The applier of these powders can use a clear varnish, if not too heavy, for the liquid of these powders for indoor use. For outdoor use we suggest that the applier use a good grade of weatherproof spar varnish vehicle, which is also a good vehicle to use for spraying.

5. Are different liquids necessary or recommended, for outside and inside service?

For inside use, a rosin varnish let down slightly with turpentine, or a mixture of turpentine and benzol, will make a very good finish. For outside use, a waterproof spar varnish, let down slightly with the same thinner, will give excellent results. If metallic powder is used outside, after it is applied it is quite necessary to put on a clear vehicle on top of the powder. Quite a number of industrial concerns put a sizing on the surface which is to be painted with metallic powder.

6. What occurs when the metallic finish dries? Does the liquid cement the flakes into a thin, smooth, durable film (like overlapping fish scales or shingles) which adheres closely to the surface on which the finish is applied?

The vehicle used with metallic bronze powders ties the particles of bronze powder to the surface to which it is applied. It is quite important to avoid thinning out the finishing liquid too much thereby taking away a certain portion of the binder which makes the bronze powder adhere to the surface.

7. Can the metallic finish be successfully applied by means other than brushing—for example, by spraying, dipping, tumbling, etc.? Is it desirable or necessary that the operator work rapidly and brush in one direction only, with no over-brushing or after-brushing?

Metallic bronze powders of all colors can be applied with a varnish type vehicle, either by brushing, spraying or dipping. If applied by dipping, the metallic paint must be constantly agitated, more so with a gold bronze than with an aluminum bronze, as the

gold bronze, being made out of pure copper, will precipitate considerably faster than the aluminum. It is quite advantageous for the operator applying the metallic finish by brushing to brush in the same direction; he will get less brush marks and will cover the surface much more neatly than by brushing back and forth.

8. Once the metallic finish has been put on and is dry, can it be buffed or rubbed or polished successfully? If so, what procedure and materials are recommended or suggested?

For bronze powder finishes which are to be buffed or rubbed to a polish, there is a special grade of bronze powder for this purpose; it is known as "burnishing bronze powder."

9. Do any or all of these metals change color or tarnish after having been applied as a finish? Does the character of the liquid have anything to do with this, or is it simply a matter of exposure?

It is quite true that bronze powder made of a copper base will change color and tarnish. Sometimes the vehicle is at fault, but it will also tarnish and change color when exposed to the atmosphere—more so when it is kept indoors. For outside exposure we always advocate a coat of clear vehicle on top of the bronze surface after it is thoroughly dry.

10. Are there different shades of gold and silver bronze powders—for example, red gold, yellow gold, green gold, orange gold; white silver, gray silver, etc.?

There are quite a number of different shades of gold and silver bronze powders, such as Greengold, Orangegold, Lemongold, Romangold, Richgold, etc.

11. What are some of the products in which gold and silver finishes are used or can be used effectively and appropriately? Have you noticed any particular trend toward the use of more or less of these finishes in certain industries, or for finishing or decorating certain products?

In the past ten years there has been more and more bronze powders used for finishes than heretofore, especially on metal. Previous to 1915 we have our doubts if there was anything made such as hinges for doors of a brass finish unless it was of solid brass. Since brass advanced considerably in price, manufacturers are making iron hinges and giving them a coat of Richgold. This gives them the appearance of a brass hinge. This is just one of the articles which are deceptive at the present time. There are lots of parts of automobiles, radios and furniture which are bronzed. These manufacturers are using tons of bronze powders, either gold or aluminum, to make attractive finishes. Quite often it is wrought iron, steel or Russian iron plate, and to make the article attractive it is either coated with aluminum or Richgold paint.

12. What improvements or trends have occurred in the development, manufacture, sale, distribution or use of these metallic bronze powders within the past few years?

One development we are featuring for the small user is to supply Silvertex aluminum in paste form, packed in tubes like toothpaste. There is no dust or powder to spill or be wasted when mixing it

with bronzing liquid. It is convenient to handle, easy to mix thoroughly with bronzing liquid, will cover 20% to 30% more surface than aluminum powder, will make a brighter and smoother finish (more like silver plate) . . . is free from coarse grains; can be sprayed, dipped or brushed.

National Copper Paint Co. Formed in Chicago

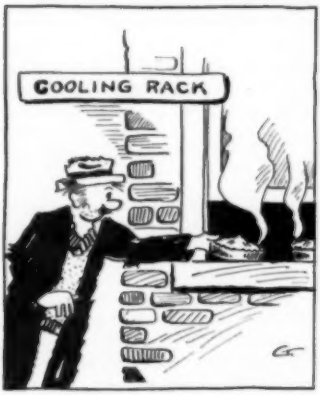
Formation of the National Copper Paint Co. to manufacture and market the newly evolved liquid paint of 98.3% purity, is announced by C. L. Welch, executive vice-president. Headquarters are at 666 Lake Shore Drive, Chicago. President of the company is H. M. Rice, manager of the Nichols Copper Co., Chicago, a unit of the Phelps-Dodge Corporation. Frederick A. McLauchlan, president of George B. Carpenter & Co., Chicago, one of the oldest mill supply distributing houses in the United States, is secretary and treasurer.

Mr. Rice is a widely known metallurgist and a leading authority on copper and all matters pertaining to the industry. Mr. Welch has been long identified with the industrial paint, mill supply and automotive fields, and Mr. McLauchlan is prominent in the mill supply field.

No. 1 plant of the company, containing approximately 50,000-sq.ft. of manufacturing space, has been established in Chicago and has gone into production. L. D. Pangborn, of Chicago, mechanical and chemical engineer, and one of the discoverers of the liquid copper paint, is plant manager.

Three items constitute the line of products for the present. One is the liquid copper paint, the second is a liquid copper primer, and the third is a liquid copper reducer to thin out the paint for spraying purposes.

Liquid copper paint is entirely new, and was evolved after eight years of experimentation and some 18 months of severe and comprehensive tests. It contains no linseed oil, fish or any other oils commonly used in the paint industry. It is rustproof and proof against the ravages of moisture, alkalis and all other deteriorating elements, and is also fire resistant . . . is applicable to any surface.



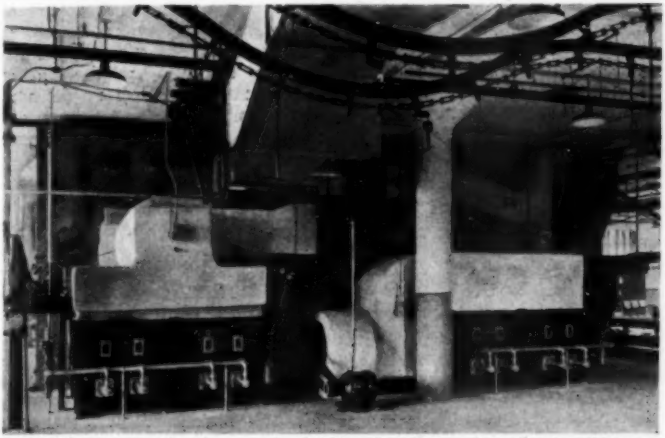
Spray Equipment Book

A new edition of Bulletin AD-114 (a 2-color, 32 page booklet, issued by the Binks Mfg. Co., 3114 Carroll Ave., Chicago Ill.) gives prices and descriptions of new additions to the Binks' line of spray equipment. New developments described include the Thor Model 5 Touch-up Gun with adjustable spray head and overhead trigger, and the Thor Model 6 Touch-up and General Utility Gun. Also included is the No. 5 Complete Touch-up Outfit with 6 extra cups, necessary hose and connections and handy metal tray.

Bulletin AD-114 briefly outlines the entire Binks' line including descriptions, prices and illustrations of spray guns for finishing, cleaning and oiling; cup-type containers, pressure containers, oil and water extractors, hose, air regulators, nozzles, compressors, portable spray outfits, spray booths and exhaust units. Helpful suggestions and technical information on the proper equipment for various users are suggested. Interested parties should write for a free copy, using their business stationery.

Electro Platers' Society

A timely warning to platers and their friends: April 27th, 1935, is Plater's day and has been set aside for you and your friends. Don't fail to attend; all day educational session; banquet and dancing in the evening; speakers and entertainment. Hotel Douglas, Hill Street, (right off Broad St.) Newark, N. J. —American Electro-Platers' Society, Newark, N. J.



Gas-fired heater units for ovens in the finishing department of an electric refrigerator factory. Conveyors for carrying work in process appear overhead.

» » Air-Conditioned Finishing Rooms—II

This is the second installment of a series of articles prepared from practical men's answers to the Editor's questionnaire about the possible value of, or need for, air-conditioned finishing rooms in industrial establishments.

CONTINUING from last month's first installment of this series of articles, wherein three important questions about air-conditioning finishing rooms, and the several industrial men's answers to same were presented, we now take up question No. 4—probably the most important of all—and give a wealth of interesting and informative discussions on same, omitting as much as possible repetitions in the answers submitted by different men.

No. 4—What advantages would you emphasize in favor of good air-conditioned finishing rooms if you were putting the case up to the management?

Off-hand, the average foreman or superintendent of finishing might think of 4 or 5 or 6 practical advantages that air-conditioned finishing rooms should of-

fer. However, in going over the many replies submitted in answer to this question, and throwing out duplicates, we find something like 30 real advantages named, along with numerous remarks, suggestions and discussion by men experienced in various phases of industrial finishing. Quoting all of some answers and parts of others (to avoid repetition) we find the question answered and discussed as follows:

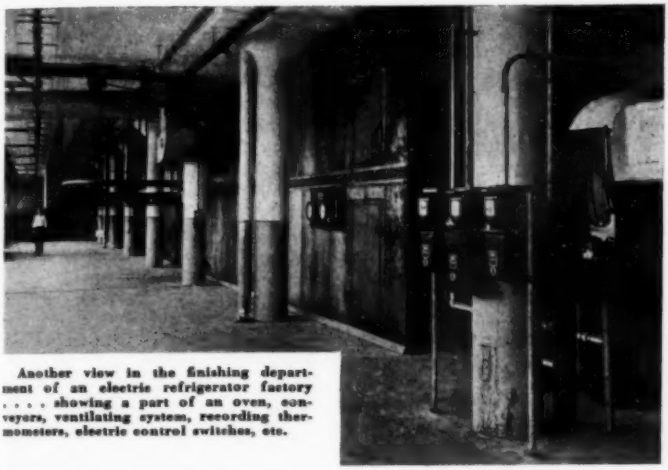
A) "The advantage of air-conditioned rooms is: Absolute uniformity of temperature and humidity condition, which will insure the same viscosity of the varnish at a given gravity, day in and day out. This eliminates guess work on the part of the finisher in reducing the varnish for use at the gun . . . in winter time a greater reduction is required than in summer when the temperature of the room is different. From an air-drying standpoint it is, in some places, exceedingly difficult to dry varnish when the humidity is high. The varnish neither dries well, nor stays dry, as there is often a tendency for it to stick to the wrapping paper.

"From the appearance standpoint, less specks and dust will appear on the finished product in an air-conditioned room. Such high grade finish is not required by all types of products, but for typewriters, tin-plate coating, automobiles, and similar high grade products, the finish is very often one of the chief selling points. In the enameling of copper wire for insulating purposes, the need for air-conditioned rooms is perhaps the greatest of any of the finishing lines that I have come in contact with. Here varnish is applied to the wire by running the wire through a bath of varnish. With every change in temperature the viscosity of the enamel changes, and the amount of enamel picked up by the wire changes. This viscosity is quite important, as the film thickness must be kept within rigid limits. The temperature of this bath cannot be kept consistent by means of a steam jacket or similar equipment."

B) "Every manager is deeply interested in anything that insures results, avoids loss of orders or customers, increases output, and reduces complaints. The manager who is willing to listen to advice along these lines not only insures his success as a manager, but is highly esteemed by his firm for his cooperation with this department. The finishing room foreman could guarantee his promises on drying time—and an air-conditioned finishing room will be a valuable asset to the management, as many of the gravest problems originate in a faulty finishing room."

C) "Comfort and health; greater output per man; fewer lost-time days; an end to the slow drying of varnish, and its improper drying. (Save time and maintain a uniform quality.) An end to lacquer blushing troubles."

D) "Advantages to be brought before the management would be: 1) All merchandise would be an even temperature, which would be very helpful in securing more even staining, drying time of stain, and less damage to joints and veneers in recesses not easily drained—this, if water stains are used. 2) If fillers or oil-glaze is used, a specific period of time could be determined for the work at hand, as to the necessary time



Another view in the finishing department of an electric refrigerator factory . . . . showing a part of an oven, conveyors, ventilating system, recording thermometers, electric control switches, etc.

required to complete the operation. In other words the time for the material to remain open (workable) could be definitely fixed. 3) The flow or leveling (correct solvents) could be more uniformly controlled. This applies to all coatings. 4) A finer and more closely adhered-to production schedule could be worked out, as then each succeeding operation would be performed only when the preceding one was properly dried."

E) "In a finishing department properly air-conditioned so that the temperature, humidity (moisture content) and rate of air circulation are under control at all times, the management could safely expect maximum production . . . every working day without loss, and thereby set up a cost record on finishing which, without air-conditioning, is more of an estimate rather than an actual cost. After all, it is my opinion that air and temperature conditions in any finishing room have more control over the finished product than all other factors put together. Therefore, with these conditions properly under control, we could expect an even flow of production from this department at all times. Difficult finishes to be matched on repeat orders would be so simplified that the material would go through the finishing room without any hesitation or hold-up to overcome many difficulties which always present themselves in departments not air-conditioned."

F) "Freedom from lacquer blushing; proper air drying; good flowing and leveling at all times; clean work; less chance of wood taking on excess moisture, as might be the case in a cold, damp room; freedom from cracking or checking caused by cold and drafts."

G) ". . . the thickness of the film will be practically the same on every finish. Quicker and better rubbing jobs. It will eliminate all dust, smoke, soot and fumes that settle in any ordinary non-air-conditioned finishing room.

Also, it improves the sales value of finished products."

H) "No film of humidity under finishing coats. This would make better adhesion."

I) "If one had a nice finishing room where the air was always pure and free from dust and free from the odor of japan, lacquer, synthetic, or any other material that might be in use, it would be possible to get higher grade finishers—people who take more pride in their work, who do not think of it as drudgery, but a pleasure. The work turned out would naturally be better and more artistic. . . ."

J) "Less warping, less cracking of the wood; less veneer checking; better and faster drying of finishing materials; cleaner work, which takes less rubbing, and consequently a finish that will hold up better because of the undercoats being properly dried."

K) "Better work, better health for men, more certain of good results, saving of stock, less fire hazard."

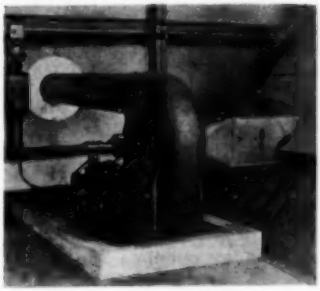
L) "It will permit the use of less expensive material if lacquer was being used; otherwise, uniformity."

M) "The advantages in favor of good air-conditioned finishing rooms are that the products finished would be in better condition. . . ."

N) "Quicker, better and more economical results in finishing with lacquer, varnish, shellac or any other materials . . . no nibs and dust pimples."

EDITOR'S NOTE: Two points barely mentioned in these answers, are really of outstanding importance, namely 1) uniformity of stock finishing materials which can be used effectively in air-conditioned departments, and 2) the reduction of fire hazard and consequently a lower premium rate for fire insurance.

Specially formulated or "custom built" finishes are often necessary for no reason other than the fact that air conditions in a certain finishing room are so unusual (generally unfavorable



An exhaust fan pulling away fumes from a gas-fired oven.

that rapid, thorough drying and other requirements are very difficult to meet.

Keeping the air moving and changing it frequently by means of suitable forced ventilating equipment, prevents it from becoming heavily laden with inflammable vapors at any station or area within the building, therefore the danger of explosions occurring, or fires starting and quickly getting out of control, are substantially reduced at all times.

Monsanto Acquires Atlantic Chemical Co.

The Monsanto Chemical Co., St. Louis, Mo., has acquired the Atlantic Chemical Co. of Billerica, Mass., manufacturers of heavy chemicals. This company will be consolidated with the Merrimac division.

● WEIMAN
Occasional
Table

Finish by

ROCKFORD
VARNISH
COMPANY

Elegance of finish has played a prominent part in establishing Weiman Furniture as a favorite with both retailers and consumers.

The Occasional Table, here illustrated, with a beautiful crotch mahogany top and solid mahogany base, is but one of the many Weiman pieces for which appropriate and practical finishes were conceived in our creative studio.

Let us consult with you on your finishing problems. There is no obligation whatever.

Rockford Varnish Co.

ROCKFORD, ILLINOIS

Kindly mention INDUSTRIAL FINISHING when writing advertisers

Metal Container Finishing

by
Henry F. Frank
The Sherwin-Williams Co.

Ipana toothpaste tubes receiving their final protective coat of clear lacquer . . . which prevents soap, warm water and chemicals in the medicine cabinet from dissolving or discoloring the finish on the tube. The tube finish must also stand bending and abrasion without chipping or peeling.

THE FINISHING and decorating of metal containers used as packages for consumer goods calls for the employment of highly developed automatic coating machines and the use of some very fine quality finishing materials. Lithography enters into much of this work as an accurate, rapid and economical means of reproducing attractive designs, trade-marks and printed copy in one or more colors.

A striking example of collapsible-tube finishing is found in the color coating, printing and clear lacquering of Ipana toothpaste tubes — part of the work being done in the manner illustrated in the accompanying cut. As the process gets under way, the cylindrical tubes (open and round at the bottom) are slipped onto traveling horizontal pegs. For some operations in the process the tubes ride on pegs projecting outward horizontally from chain conveyors, see upper portion of the illustration herewith. For other operations the pegs project outward

from the sides of revolving discs, as pictured in the lower part of this same illustration.

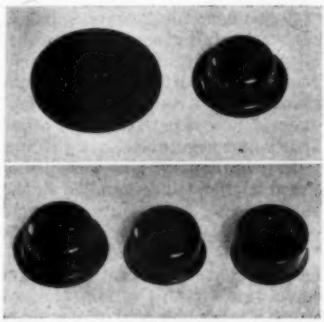
At the first station of operations, the solid color coat is rolled on smoothly and uniformly from a soft composition roller, after which the loaded chain disappears into a continuous conveyor oven. Coming out completely dry, the solid-colored tubes move to the second station where the entire decorative and printed design is rolled on from an offset roller as each tube rotates on its peg. Again going through an oven the tubes come out completely colored, decorated and printed. The third and final finishing operation consists of automatically rolling on a thin, uniform coat of clear lacquer which dries quickly at room temperature, leaving the finished tubes ready to be filled with toothpaste.

In the decorating and finishing of many other types and kinds of pressed metal containers however, the color coating, lithographing and clear varnishing or lacquering operations are performed in multiple on large flat sheets of metal, which are later cut and pressed into shape by automatic machines. Naturally, the protective and decorative finish has to be of an unusual character to withstand this unusual production procedure.

The sheets are generally coated by means of a roller coating machine. The liquid coating material is placed in the well and is fed onto a feed roll and then onto a second roll (both of steel) which in turn deposits it on a soft composition roller. The bottom steel roller has a scraper arrangement to keep the material off the portion of its surface in contact with the sheet being coated. All sheets are coated on one side and then the other. The design is then lithographed over the base color.

The base coating must have good adhesion properties to the bare metal for obvious reasons. Its drying qualities must be uniform and dependable so that after traveling through the oven at a certain temperature and during a specified short time, the ground or base color coat will be really dry and ready for the next automatic operation, which is the lithographing. Covering qualities (for hiding power) and flowing qualities (for smoothness) are likewise important. Also, the drawing qualities must be excellent to withstand the subsequent fabrication.

The following are typical constituents (in varying percentages) of a white base coating: Zinc oxide, titanium oxide (either or both), synthetic resins, linseed



Strips are cut from large tin plate sheets which have already been sized, coated and varnished.

Above: Flat blank and first operation shell cut from strip on a punch press fitted with a combination cutting and drawing die.

Below: Operations from left to right are: redrawing, trimming and forming. . . . performed in one gang press.

oil, China-wood oil and suitable mineral spirits.

Baking is necessary for adherence and also to insure that the coatings will stand the drawing operation. Furthermore, the ability to withstand surface abrasion is important. An unusually satisfactory finish on the Karo and Mazola cans of the Corn Products Co. has eliminated separators in the shipping cartons, effecting a saving in both carton and labor costs.

The illustration marked Fig. 2 shows some of the forming operations on various can parts, after finishing. Body, bottoms, breast tops, screw tops, etc., all require special steps. It is also necessary to see that soldered cans are free from finish at the point of soldering. With crimped cans this is unnecessary.

The interiors of fruit and vegetable cans require different types of lacquer coating to withstand the action of the canned products. "C" lacquer, for instance, is for cans containing corn, fish, crabs, lobsters, etc., to resist certain acid reactions set up by these substances. The regular "gold" lacquer is necessary for some other fruits and vegetables.

Five-gallon pails and lithographed drums are handled in the same way. It is interesting to note that lacquers of the so-called "Sanitary" type have been so successful that their coating values have led to the elimination of wooden packages and paper-lined packages. The metal container is protected from the action of the contents and vice versa.

Metal ends for paper containers such as are used in household cleaners, are often finished with an alkali-resistant material. Resistance to abrasion is greater in some finishes than in others, and this quality has advantageous merits.

There are two types of finishing varnish applied as a final coating, after base-coating and lithographing are completed. One is an ordinary white varnish; the other is a white processing varnish that has special steam and hot-water-resistant properties to withstand the severe action in cooking fruit and vegetables, after they are in the can.

Screw caps also offer their individual finishing problems. On liquor closures, for example, alcohol-resisting coatings are necessary. Sanitary lacquers must not impart an odor to the material processed.

Certain types of crowns for bottles and salve boxes need white processing varnish over all lithography to resist the action of sterilization. The interiors have "Sanitary" lacquer protection.

Reprinted from the 1935 edition of "Packaging Catalog," published by Breskin & Charlton Publishing Corp., 425 Fourth Ave., New York, N. Y.

Tremco Opens New York Office

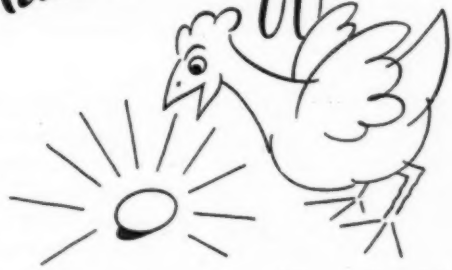
The Tremco Mfg. Co. (protective coatings, water-proof, plastic specialties) 393 E. 131st St., Cleveland, Ohio, announces the opening of a New York City office at 621 Graybar Bldg., 420 Lexington Ave.

Makes Paint Stick to Galvanized Iron

The American Chemical Paint Co. of Ambler, Pa., has developed a new and improved liquid chemical called "Lithoform" that is used on galvanized iron to insure paint adhesion. The product is easy to apply, foolproof, and very inexpensive. A new bulletin about to be released will contain the complete facts about the chemical and its use. Write the company at Ambler.

FRESHNESS

Makes a difference



ALL shellacs are not alike. They vary in quality. And they vary in effectiveness in proportion to their freshness.

Du-Pros is made only from pure shellac gum and Government test alcohol. To insure quick drying, easy sanding and a tough, durable finish, every gallon of Du-Pros Strictly Pure Shellac is freshly made when shipped.

Other fine Day finishes are enamel, stain, filler, sealer and lacquer.

DU-PROS *is fresh shellac*

JAMES B. DAY & CO.

• CHICAGO •

Finish Foundation for Bare and Plated Steel

(Metal Cleaning; Rust Prevention; Metal Priming)

by George A. Endom
Brewster Aeronautical Corporation

IT IS HARDLY necessary to say that the workmen cleaning metal for priming and the workmen doing the priming must use rubber gloves, both to protect their hands from the cleaner and to protect the metal from contact with their hands. Also, as soon as metal of any type is cleaned and dry it should be primed, as the action of the atmosphere, with all the chemical and physical impurities it carries, can be a considerable deterrent to perfect adhesion of any coating material.

I found it necessary to use two kinds of chemical cleaner, both produced by the same manufacturer. One is a standard wet solution; the other is called a dry cleaner. Incidentally, the latter is ideal for the small shop where wash tanks are not available.

The wet cleaner (following the manufacturer's directions) is applied by brush or dip—using steel-wool or wire brush to break up concentrated oil, acid or dirt spots. While the metal is still wet with the chemical cleaner the parts are slushed in cold water, then again in hot water, and oven-dried for

In this final article, the author tells about his experience with two kinds of commercial cleaners and with acetic acid solutions; he explains what types of priming and finishing coatings he applied and he gives the results of severe tests of exposure to the sun, wind, salt spray and salt air, to show the effectiveness of the cleaning and finishing processes in preventing formation of rust.

primer. Care must be taken to make sure that all water is blown out of crevices and seams by compressed air.

The "dry cleaner" method, though not quite so effective on heavy, pitted rust spots or heavy grease, is much more simple.

Parts to be cleaned are sprayed with a heavy coating of this material (which has a tracing color); then they are oven-dried at approximately 190°F. to 230°F. for from 20 to 30 minutes, or air-

Part I appeared in March, 1935, issue.

dried for several hours. The cleaner is then removed with stiff brushes and wiping cloths, and then primed.

The clay-like base of this cleaner will absorb excess oil, but in every case it will be found necessary to first remove caked paint and dirt with a thinner or lacquer solvent.

All traces of the dry-cleaner must be removed, and it is a good plan to inspect all parts and wipe with an alcohol rag before priming.

Sheet steel cleaned by this method can be tested for "water-break" and will be found to give an unbroken water glaze over the entire sheet.

Welded fittings, castings and soldered pieces were cleaned by the above method, coated with oil-base or pyroxylin primers, given two coats of oil-base or lacquer enamels and given these tests:

1) EXPOSURE TEST. Similar panels 6x16-in. were placed vertically on the roof in such a position as to be exposed to wind and sun from all directions. These panels were dated with metal tags and examined each month. After a period of 19 months the panels, which were protected by a good coating material, were stripped and found to have preserved the steel in good condition. Where the enamels failed, the panels were removed and, after re-cleaning, they were recoated.

Some corrosion was found, usually starting at the edges. It was found to be caused by lack of attention to cleaning or painting these edges.

2) SALT SPRAY TEST. Various panels were suspended in a spray of heavy salt water for a continuous period of from approximately 112 to 600 hours; they were washed of incrustation, dried, given a bending test and, although in most cases the protective coating cracked, the film did not shed in sheets nor did the metal show appreciable rust spots except where enamel failed.

3) SALT AIR TEST. Over a vat of salt solution in a room of 86°F., with relative humidity at 74%, test panels were suspended in direct sunlight for a period of some six months. Some shedding or flaking was found on these panels and considerable chalking of enamels was noted.

Naturally, during the course of these experiments many things were found about primers, enamels and processes of coating. Also, another cleaner was found that was fairly reliable if handled carefully.

Although not as good as the commercial cleaners referred to, it was found that a 2% to 3% solution of acetic acid, used as above, a wash and slushed off with clean, cold water, rendered the surface as chemically clean as could be reasonably expected.

The two types of commercial cleaner and the acetic acid solution just slightly etched the steel surfaces enough to give the necessary "tooth" to the face of the metal. The commercial cleaner was the better etcher.

Application of the Primer

The primers used were: red iron oxide, oil-base; lead chromate, oil-base; and zinc chromate lacquer primer.

All primers were thinned according to manufacturer's directions or just a trifle more. Spraying at 60 to 70-lbs. atomizing pressure, a wet coat was applied,

but the mixture was always thinned enough to be partly transparent. Some of the failures in priming were due to attempting to apply the primer too heavy in pigment, thereby causing a semi-dry spray which was not wet enough to soak into the "pores" of the metal. Also, especially in lacquer primers, holding the gun too far away from the surfaces being coated resulted in the same trouble.

Heavily rusted surfaces were cleaned to stop the rust cycle but all traces of rust were not removed. The rust-forming chemicals being killed, the pigment content of the primer was reduced until practically only vehicle remained, and satisfactory results were obtained.

Surfaces deeply pitted with rust had to be filled or surfaced but these places, being sanded down well, did not increase flaking.

In summary, I believe satisfactory adhesion on bare or plated steel will be found by:

1) Cleaning well with either type of commercial cleaner mention. (If these are not available, a mild solution of acetic acid will do.)

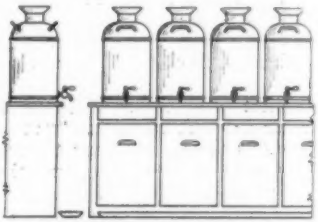
2) Thoroughly removing all cleaners by washing and drying.

3) Carefully priming, as outlined, as soon as possible after cleaning.

4) Always watching the "human element" for carelessness and error.

Handling Materials and Supplies

IN MANY localities a manufacturing concern is allowed to keep only as much as one day's supply of inflammable solvents, oils and finishing materials at a time in its finishing room—that is if it abides by the insurance company's regulations. The remainder of inflammable materials are generally stored in what is customarily termed "the oil house"—usually a small brick building separate and some distance from the main factory buildings. When the day's supply is drawn and moved to the finishing department it has to be handled in such a way as to prevent unnecessary wastage, which can be caused in different ways, such as by evaporation, carelessness, unwieldy containers, etc.



Side and front elevations of bins and containers for finishing supplies, material and liquids. Note drip pan at bottom.

In one finishing department where I worked the day's supply of finishing materials was kept in ordinary 5-gal. milk cans. I do not approve of this method, as I know that 9 times out of 10, when a man tries to poor a thin solvent from the mouth of one of these containers he is bound to spill a certain amount of it on the floor. Another objection is that we never seemed to be able to keep enough corks on hand. This resulted in an unhealthy as well as a wasteful condition in the store room.

In another finishing department where I worked, they had what

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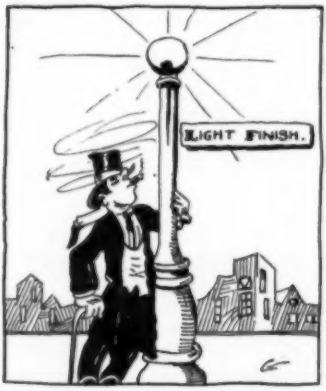
I consider a very economical as well as healthful, labor-saving idea for taking care of solvents. They used ordinary milk cans equipped with faucets. For thin liquids, ordinary water faucets were used, but for the heavier liquids they used barrel faucets [oil gates] which do not clog easily. This method was more efficient.

The cans were placed on top of a low counter which was divided into bins, as shown in the accompanying drawing. The bins were used as convenient storage space for such materials as whiting, powder colors, gum shellac, etc. Open compartments or shallow drawers directly under the top of the cabinet and above the bins were used for other smaller materials such as, abrasive paper, chalk, steelwool, curled hair and various small items to be handed out from the stock room to the workmen. On the floor in front of the cabinet, as you will notice in the illustration, there is a drain pan to catch the drippings from faucets; this helps keep the place clean.



By using this inexpensive storage equipment, our finishing materials and supplies were handier to reach and at the same time they occupied a minimum amount of floor space.

By having two sets of cans—one in the oil house to be filled, while the other set was in use in the stock room—we saved the time that otherwise would be spent in waiting if only one set of cans were available. The idea of numbering the cans and bins instead of labeling them, served to prevent the ordinary workman from entering the stock room and helping himself while the stock room clerk happened to be out for a few minutes.—E. RANDALL.

Industrial Equipment General Catalog

Tanks for processes and storage, mixers, tables, sinks, ovens, dryers, and scores of other special and standard metal products designed, built and installed by experienced engineers for various industrial purposes are illustrated and described in a new general catalog recently compiled and published. The catalog contains 52 loose-leaf pages 8½x11-in., bound between heavy paper covers of attractive design and color. Introductory pages outline in detail the extensive services rendered by L. O. Koven & Brother to the industrial field. Copies of any desired sections, or of the entire catalog, will be furnished by L. O. Koven & Brother, 132 Ogden Ave., Jersey City, N. J.

Alsop Appoints Ohio Representative

The Alsop Engineering Corp., with main offices and showrooms at 39 W. 60th St., New York, N. Y., has appointed W. H. Lilly to act as its Ohio representative. Mr. Lilly who has had a great deal of experience with liquid processing equipment will cover Frankfort, Louisville, Indianapolis and neighboring districts in addition to the general Ohio territory. His headquarters are at 1903 Berkeley Ave., Cincinnati, Ohio.

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ED FINISHES

Do you buy or sell or mix or use - - - Wood Stains and Fillers

by B. Nelson
The Gilbert Spruance Co.

The foundation of your wood finish (stain, filler and sealer) is where probably 90% of wood-finishing troubles originate. This article tells you how to avoid these troubles . . . . how to select and use stains and fillers for the results you want to obtain.

IN ALL THE years I have talked to salesmen and finishers throughout the United States, I have always tried to impress upon them the fact that to get a high-class finish on fine furniture, and also on good architectural woodwork, they must do the same as when building a home—get a solid foundation first. By that I mean that if you do not get the proper undercoat and apply it properly, you could use the best top coat possible, whether lacquer, varnish or enamel, and still the results would be unsatisfactory. For instance, you have heard that varnish prints. Sometimes it is the fault of the varnish, but if your stain, filler or undercoat is not perfectly dry, you certainly will have print trouble, no matter what type of finish you are using.

Now, let us proceed with the stain. It is up to manufacturers of wood finishing materials and up to finishers to make the wood look good, and by that I mean to use finishing materials that will bring out the beauty of the wood rather than make it cloudy or muddy. Various kinds of stains are available for various kinds of wood.

Acid Stains; Water Stains

Acid stain, commonly called water stain, is used principally where fine work is required. The stain material is sold in powder form and dissolved in hot water, but used cold. The amount of powder used varies with the strength of stain desired. On maple and birch most finishers use stronger solutions than on mahogany and walnut. On mahogany and walnut this stain brings out the grain beautifully.

The stain should be allowed to set over night so it will dry thoroughly before applying the next coat. You may say this is too long for a water stain. I know

EDITOR'S NOTE: This article is from the speech Mr. Nelson delivered at the Gilbert Spruance Sales Convention in January, 1935.

there are cases where they do not let it dry that long, but if there is any moisture left in the pores of the wood you will get into trouble sooner or later.

After the stain is dry, a very thin coat of shellac is generally applied. It must be very thin; if it is too heavy the gum in the shellac will settle in the wood pores and prevent proper filling. If the wood is filled directly over the stain, the colors in the filler will make the work smeary. The surface is then carefully sanded, as water stain raises the grain of the wood.

Fillers and Filling

Now comes the filling, which I consider the most important process in wood finishing. If the pores in the wood surface are not properly filled you may get into trouble. There are various kinds of fillers on the market. . . . A good filler is made from silex, linseed oil and japan. When a filler of this type is dry, the top finishes have no chance to shrink. We recommend mixing 12-lbs. of filler to a gallon of thinner for use on mahogany. A good grade of naphtha should be used; otherwise you will have a greasy surface. For walnut, we recommend 10-lbs. of filler to the gallon of thinner. In many cases, less filler is used to a gallon of thinner. Follow your manufacturer's directions or recommendations until you prove by improved results that something different is better.

After the filler is applied, it will have to set for a little while until it becomes dull. Then the filler must be wiped and patted in across the grain of the wood. Remember, if you wipe lengthwise, you rub the filler out of the pores instead of rubbing it in. When that has been done, you may carefully clean off the surface by lightly rubbing lengthwise, using a clean rag or piece of waste.

"How long should a filler dry?" That is a question which is often put up to you. I say at least 12 hours, but you will say there are 4-hour fillers on the market, and lacquer fillers that dry in 4 hours; there are, and we have them. Lots of our customers use them, but remember this: If we make a filler to dry in 4 hours, some of that good linseed oil which makes a filler elastic has to be taken out, and something else substituted. As I said before, speed of production and lack of space might prevent the customer's waiting as long as 12 hours. I would like to add to this that in many cases wood finishers let the filler dry as long as 48 hours.

Bear in mind that if the filler is not dry, and a lacquer sealer is used over it, then you are pretty sure to get what we call "gray in the pores," and the varnish turns green, producing a cloudy effect. In such cases the sealer and varnish get the blame for the trouble, which really comes from the filler not being properly dry. I will leave this subject of filler . . . but to emphasize again . . . filler must be dry before anything else is put on. If you attend to that, you will avoid a lot of trouble afterwards.

Fast-to-light Stains

As I said before, acid stains are recommended for high-grade work, but they have one disadvantage. They raise the grain, making the wood very rough, and it requires a lot of sandpapering, which has to be done carefully so as not to sandpaper through to the bare wood. This necessitates

touching up through the entire finishing process, which is very expensive for the furniture manufacturer. Therefore I suggest a fast-to-light stain, which is made from the same water-soluble dyes as used in making acid stain. This stain will not raise the grain and, when lacquer and sealer are applied directly over it, it does not bleed. By bleeding I mean the lacquer or sealer picking up the stain.

Some stain users buy fast-to-light stain in concentrated liquid form, in straight colors such as black, orange, red and yellow. They buy a special reducer and by combining the different colors, they can make their own shades. Here are some of the advantages in buying straight colors: Should a manufacturer change his color, the finisher can make up the new color from the same stains he has been using, without delay. Should he have a stock of these stains on hand, he can use them up without waste. You will also find it cheaper to buy the straight colors. Should a customer, who buys concentrated colors, want us to match a color, we suggest that he get a sample of the color desired, together with samples of the wood to be used, and we will make the match and send a formula for mixing the stain in the user's factory.

Penetrating oil stain is made of oil-soluble dyes and is used on common, ordinary wood. It does not raise the grain but it cannot be guaranteed not to fade, especially if it contains red dyes. Large manufacturers of furniture and novelties use great quantities of these stains with very satisfactory results. There is one point you must always have in mind when using these stains: Be sure the stain is thoroughly dry before applying shellac or sealer. Another thing: Do not varnish directly over an oil stain, as the varnish will never dry. . . . A shellac or sealer must be used to seal the stain before any varnish is put on.

Now we come to uniforming oil stain commonly known as wiping stain. This stain is used extensively on common woods such as gum and whitewood from which novelties are made. When these stains are applied, they can be wiped out so that the differences in the wood are hardly seen. I cannot tell you how to wipe these stains or how much to wipe, nor can the exact directions be put on the labels of containers. The finisher must use his own judgment and skill to get a uniform shade or color.

New Maple Finish

In the last two years there has been a run on maple finishes. At the furniture shows they were the talk of the market. It is very hard to explain how to get a real maple effect. It is up to the man in the factory. The finisher gets the effect by wiping or highlighting, and unless he has an idea of his own about antiquing, he won't get an antique finish no matter what material he is using.

Some furniture manufacturers get the best results by using a water stain or a maple toner on the bare wood. Then they give this a thin coat of lacquer sealer, sand well, and then apply a maple glaze. By using the maple glaze properly they get the antique effect. After this stain is dry overnight, a coat of sealer is applied. A shading stain is sometimes used

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to uniform the sappy spots appearing in the wood.

I am now coming to a point on which I want you to use your own judgment. We have had many maple finishes sent to us to match in one coat of stain to be applied directly over the wood, then a coat of sealer and finish in flat lacquer or flat varnish. Please bear in mind that a panel of this kind, which you are sending in to match, may have two or three coats of different stain or toner and be shaded . . . all applied to the finest grade of maple wood, and then you expect us to match this in one coat of uniforming stain to be used on a piece of gum or whitewood. I don't say this can't be done, but I am not ashamed to make the statement that I do not know how to do it. This applies not only to maple but to other finishes as well. I know that if these large furniture manufacturers could get the effect with fewer applications they would certainly adopt that method instead of using so many coats to obtain the fine finish.

Back to the maple finish which is so popular, we do make a maple uniforming stain to be applied directly over raw wood and then wiped to get a maple effect, and shaded if necessary. You may say, or someone else may say it looks good, and sometimes you have to agree with him, but if you compare this method of finishing with the real maple finish you will see that there is a big difference.

Shading Stains

Now regarding shading stains: You know a piece of furniture consists of several kinds of wood. The top and front may be mahogany or walnut, but the legs and turnings will be other wood—either white or gum wood. The stain will take differently on every kind of wood. So to get a uniform color, we have to use a lacquer shading stain. In this case also, it is hard to tell you how much to put on or where to use it. It is up to the finisher to use this stain where he finds it necessary.

Samples

A word about sample orders: You are well aware that it costs a manufacturer of finishes a lot of money to match samples. In many cases we have to make up several matches before we get what we think is right. In most cases, when samples are sent to us we do not get any information at all from the salesman. We match the sample on the same kind of wood as the panel sent in. When the sample is sent to the factory it is sometimes used on another kind of wood; as a result our match is way off. We would like to get some of the wood the customer uses, as our wood is selected, and this grade is not always used in the furniture factory.

We appreciate the opportunity to make up samples for customers and prospects, for this is the best way of convincing them. . . . However, when the company spends its time and money to make samples, you salesmen should follow them closely and see that we get a report on how they worked; after all, the service we can render depends on close cooperation between representative and customer.

Mixer-Filter Bulletin

A new 4-page bulletin, "G.I.411," has recently been issued by Alsop Engineering Corp., 39 W. 60th St., New York, N. Y. The folder illustrates and briefly describes the company's complete line of Hy-Speed electric mixers, filters, glass coated tanks and bottle fillers.

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« Dip Finishing »

by C. F. Scribner
Industrial Engineer

Successful dipping depends first upon the shape of an article and the way it can be hung for dipping and draining. Other factors are: suitable finishing materials and the right kind of equipment — both used economically and efficiently under proper conditions.

▼ ▼ ▼ ▼ ▼

PERHAPS the greatest problem in the dipping process is maintaining the right viscosity in the tank. When the liquid is too thin it will not cover the article in one coat; when it is too thick, drops and fat edges form, which may fail to harden before the products are ready for shipment or even before the work reaches the customer. In either condition, the firm suffers by excessive cost or by the loss of future orders, claims for damage, etc.

Viscosity

Viscosity may be tested and controlled in various ways. A container of specified dimension, with a hole in the bottom through which the liquid will flow in a given interval of time, is a simple testing apparatus for viscosity.* With the right thickness once determined, this thickness can be maintained by adding thinner when it becomes too thick, or adding finishing material when it becomes too thin. Constant temperature of both bath and room is also a vital element in the control of the viscosity of materials for the dipping process.

In diluting varnish or paint finishes, care must be taken to prevent curdling the oils or gums. Partially oxidized dryers, such as boiled linseed oil and tung oil, are difficult to dissolve by petroleum spirits and if the percentage of such spirits becomes too high, curdling is sure to take place. To keep pigments in suspension regular agitation is necessary. In all spraying equipment this is provided for in the containers which hold the liquid.

Rate of Drying

Rate of finish drying is partly determined by the composition of the material and partly by the treatment before and after application. With paints, enamels and varnishes, the more linseed or tung oil, the slower the drying time, although these elements increase the toughness and durability. Using mineral salts as driers,

*Several regular instruments are available for testing viscosity, among them being the "Ford Cup" (No. 4) by the Scientific Instrument Co., 535 W. Larned, Detroit, Mich.

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THE EGYPTIAN LACQUER MFG. CO. 90 WEST STREET, NEW YORK, N. Y.

EGYPTIAN LACQUER

while giving partial control of drying time, does so at the expense of the life of the finish, consequently care must be used in their introduction.

Oven Heat

The time of drying can be materially reduced by the application of heat. Ovens heated by oil, steam, electricity or gas have been found applicable in this connection. A recent development is a regenerating oven, in which the air is drawn by a forced draft around and through a thermostat-controlled gas flame.

The draft is arranged to flow from the outgoing to the incoming end of the oven. The fumes from the new work are drawn directly through the flame which, burning out the volatiles, reduces chances for explosion, produces cleaner work, and reduces the gas consumption. Fresh air is drawn in constantly to accelerate oxidation. Forced-air circulation has been found to improve the quality of the finish, by preventing hot or cold air pockets in the oven.

Balanced Operating Facilities

In every plant with a volume output, the entire finishing process must be "tied in" with the production flow from prior departments. Only when this is done, and when the dipping tank, the drainage space and its facilities, the length temperature and circulation of the drying oven, and so on, are timed to permit the completion of the finishing processes as a continuous operation, can the finishing department be said to have received the attention that it merits.

In the years just ahead many firms that have been very successful in the past are going to find hard "sledding" unless they approach their production with an open mind and take full and complete advantage of every facility for cost reduction that has been developed so extensively during the past three years.

The value of an aluminum paint depends largely upon the vehicle used; there are vehicles of many different types and qualities.

Letters from I. F. Readers

(Continued from page 6)

mirrors inquired for, we would be very pleased to receive details, and the names and addresses of the makers. — Waring & Gillow, Ltd., Lancaster, ENGLAND.

EDITOR'S NOTE: In a letter we are giving you the names and addresses of three firms which answered that inquiry and advised us they could supply transparent mirrors. Also, please note the letter on this subject on page 6 of March issue.

Hydrowax N Liquid

In answer to the inquiry from the L. Mfg. Co., page 46, of the February issue of INDUSTRIAL FINISHING, please be advised that we are the manufacturers of Hydrowax N Liquid referred to in the inquiry.—Glyco Products Co., 949 Broadway, New York, N. Y.

Bake Oven Wanted for Crackle Finish

We wish to design a bake oven to bake crackled finish on black iron for fancy heater casings. We understand that this crackle finish is obtained by baking heavily applied paint under air pressure. Kindly give us any information you can regarding the design of this oven. If you think it advisable, you may refer this to some lacquer company who has had experience on producing such finishings. —H. S. T. Co. (Heating & Ventilating Engineers.)

What's New « «

Sprays Drums, Barrels

A new unit for rapidly spray painting the outsides of kegs, drums, barrels and similar wood or metal cylindrical containers is announced by the Binks Mfg. Co., 3105-50 Carroll Ave., Chicago, Ill.

The barrel to be sprayed is fed onto the revolving mechanism by gravity through an adjustable opening in the rear of the spray booth. The barrel then rests on the revolving sheeves, as shown in the illustration. These sheeves are adjustable for all standard sizes of barrels. The sheeves are revolved by a totally enclosed motor connected by a "V" belt to a reduction gear. The speed can be adjusted for the various barrel diameters.

An operator with a Binks Thor Model No. 2 Gun sprays the finishing material on the barrel as it revolves. Immediately upon finishing a barrel, the operator pulls the lever on the mechanism which rolls the barrel onto a conveyor. The next barrel in line then takes its place on the revolving mechanism.

From actual tests it has been found that more than 200 barrels can be painted in an hour this way. Binks furnishes the outfit complete with all the necessary accessories to make a complete finishing job, such as spray booth, exhaust fan, material pressure tanks and the Thor Model No. 2 Spray Gun.

Improved Primer Surfacer

The American Lacquer Solvents Co., Phoenixville, Pa., announces "Co-loidal-ac Primer Surfacer 30-307"—a new type lacquer for metal manufactured by the Colloidallac Process. Six features are listed as follows: 1) High in solids, fills unusually well; 2) Excellent adhesion;

3) Dark in color, which is best for most shop work; 4) Feather-edges perfectly; 5) Sands easily, flows on like finish lacquer; 6) Non-settling, does not settle hard in can.

Other items in the company's line include: tinting colors, blacks for high grade finishing, grease-proof refrigerator white, white undercoats, Supersol thinners and retarders and Solvex lacquer cleaner for removing old wax and polish.

Slide-Off Transfers for Trade-Marking Products

The Palm Bros. Decalcomania Co., Norwood, Cincinnati, Ohio, are offering new slide-off transfers in attractive colors and designs (stock and custom designs) for trade-marking manufactured products, for window signs and for use on delivery trucks. These transfers are lacquer coated. Directions for applying the slide-off transfers are as follows:

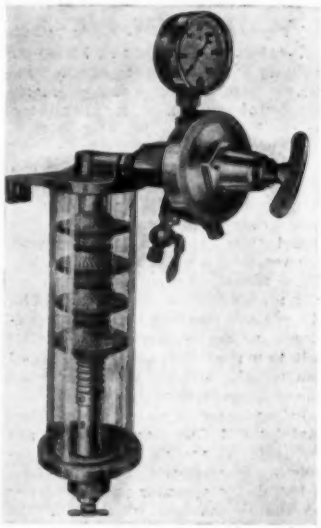
"Dip the transfer in water and when same releases, slide it off onto the article on which same is desired, or slide transfer over edge of paper; press transfer part onto surface desired with thumb, and with other hand pull paper from under transfer. Press down with a soft rag or dampened felt roller and allow to dry."

New Air Purifier

A unique, practical purifier for conditioning air or gas has just been announced by the Alexander Milburn Co., 1416 W. Baltimore St., Baltimore, Md., manufacturers of oxy-acetylene apparatus, paint spray equipment and portable carbide lights.

This purifier is radical in design, having a glass shell through which any accumulated oil, moisture or dirt can be readily seen, enabling the user to quickly determine when cleaning is necessary.

A series of perforated plates and



Filtered dirt can be readily seen through the glass.

strainers efficiently remove foreign substances from air or gas lines, ensuring at all times a clean, moisture-free flow for paint spraying, welding or any other similar operations. It is particularly desirable for paint spray equipment where the air to the spray gun must be conditioned dry and clean at all times to prevent spotting of work.

Extremely simple, this purifier has very few parts and can quickly and easily be taken apart for cleaning.

It is equipped with a full size, 3-in. diaphragm regulator having a graduated gauge, making a compact unit that will give years of efficient service.

Aluminum Paste in Tubes

A letter from Herman Kahn of the H. Kahn & Co., 2222 N. 11th St., Philadelphia, Pa., states that:

"We have recently developed and

VALUE *above* COST!

NOT by magic, but by using accepted standards as your "yard stick," you will find it possible to produce a *better* finish at no additional cost, with our "Unquestionable Quality"—Custom-Built finishes.

Lacquers, Sealers, Stains, Fillers, etc. Liberal working samples to convince you — write for them.

V. J. DOLAN & COMPANY, Inc.

Manufacturers of "Unquestionable Quality"
Wood Finishing Supplies

1830-32 North Laramie Avenue Chicago, Illinois

Dipping?

Yes! In many industries unexpected economy and satisfactory finish have been secured by using Dipping Cel-u-Lak. Difficult sizes and contours have been successfully handled.

Toys, auto moldings, agricultural implements, tools, novelties, handles, brushes, are only a few of the objects where Dipping Cel-u-Lak has been effective.

Send us a dimension sketch of the article; tell us the material and the color desired and we shall give our suggestions gladly.

THE VARNISH PRODUCTS CO.

CLEVELAND, OHIO

are marketing aluminum paste, put up in collapsible tubes whereby there is no waste. These tubes weigh approximately 7-oz. net contents. We have named this Aluminum Paste Silvertex. One tube of No. 50 Silvertex, mixed with one quart of our Supreme Bronzing Liquid, will make one quart of the finest, smoothest aluminum paint obtainable; will make a finish similar to a silver plate.

"For outdoor exposure we recommend our Aluminum Exterior Vehicle; it will wear and be very durable for approximately five years. This Silvertex has exceptional covering capacity, is free from any foreign ingredients, and will give the most brilliant and smoothest finish obtainable from any almuinum. . . . We have met with remarkable success on this product, success which is astonishing to ourselves. This Silvertex is put up six tubes in a display box, either for resale value or for the consumers."

Oil and Solvent-proof Hose Offered

Mr. V. W. Wells, Advertising Manager of the Electric Hose and Rubber Co., Wilmington, Del., offers the following information about a newly developed material hose for use in spray finishing:

"Our most recent development that is of interest to your readers is a special hose known as DB Type which has a lining compounded from Duprene, a new material recently developed by the duPont Laboratories, which is extremely resistant to oils and solvents. We have worked very closely with the duPont Company in the development of various types of hose compounded with this material, and have been so successful with it that our sales of this hose at the present time far exceed the supply of Duprene which we are able to obtain. However, if any of your readers have any use for hose in which the resistant qualities of this product may be of value, we will be glad to work with them. This DB Type hose is especially resistant to any types of oils and solvents which are usually rapid in their attack on rubber.

"We also just issued a new Buyers Guide to Industrial Hose, a copy of which we are sending you. This book contains a wealth of information of value to any hose user, and we will be glad to send a copy to any of your readers."

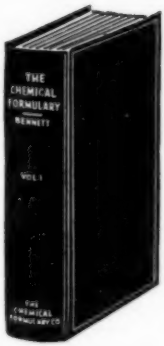
New Type Gun Flows Stripes, Ribbons

In response to frequent requests for a gun or nozzle to flow stripes or ribbons, The DeVilbiss Co., Toledo, Ohio, has developed a new type flow gun. This gun is designed especially for jobs such as striping automobile bumpers, and flowing sealing compounds, cements, and other plastic materials. The gun forces the material out of the nozzle directly onto the work. Since each nozzle must be designed for a particular job, it must be built according to the specifications of the user.

The gun may be made with either single or multiple nozzles which will flow any width of stripe up to 1-in., and multiple nozzles may be designed to flow parallel stripes of either equal or unequal widths.

Material flow with single nozzle guns may be controlled either by regulation of fluid pressure, or by

Can be operated by thumb or index finger.



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In this one book you have at your fingertips practical commercial formulae for making thousands of useful products for your own use and for profitable manufacture. It is exactly the book that every commercial chemist has long wanted. 600 Meaty Pages of formulae including many patented, scarce and little-known processes, many published for the first time. Collected by over 60 outstanding industrial chemists and technicians—every formula proved successful by actual test and experience.

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Alloys
Anti-rusts
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Candy Glaze
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Disinfectants
Dyes
Electrotyping
Etching Compounds
Fertilizer
Fireproofing
Fly Killer
Food Specialties
Glass Polish
Gold Plating
Hair Setting
Liquids & Tonics
Inks
Insulation
Lacquers
Latex Paint
Liniment
Liquors
Lubricants
Nickel Plating
Oil Sun-Tan
Ointments
Paints
Photographic Specialties
Polishes
Preservatives
Printing
Refrigerants
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adjustment of fluid needle travel, while multiple nozzle guns are provided with a small needle valve at each nozzle. The gun is small, light and fits the hand comfortably. It may be operated either by thumb or index finger.

Jet Black Enamel

No. 311 Gloss Jet-Black Enamel, for use on either metal, composition, or wood, is announced by the Valspar Industrial Laboratory of Valentine & Co., 386 Fourth Ave., New York, N. Y., and 12 Emily St., Cambridge, Mass. This deep black gives excellent adhesion and durability. It may be air-dried or baked and, while it is essentially a high grade product and may be sprayed, dipped or tumbled, its economy makes it one of the outstanding black enamel values on the market today.

Synpex Undercoats for Grained Metal

Maas & Waldstein Co., 438 Riverside Ave., Newark, N. J., call attention their air-drying undercoats for prepared metalwork in a letter which follows:

"We have developed a line of Synpex undercoats which will be of interest to manufacturers of metal radiator-covers and enclosures, and metal furniture of all kinds. Most of these people are now using a baked undercoat. Then they grain the surface, bake the graining ink, and follow with a finish coat of flat lacquer.

"Below, we give specifications for finishing, using Synpex undercoats:

"One spray coat of Synpex undercoat of the color desired, thinned equal parts with thinner.

"Air dry about 15 minutes, and then apply the graining.

"Bake for one hour at 250° to 300°F., or follow same schedule as customer is now using in baking graining ink.

"One spray coat of flat flexible topcoat lacquer, used as it comes from the package as a finish coat.

"Synpex undercoats are a combination synthetic and lacquer material, and still retain their elasticity under heat for a long period of time. Using these materials, you eliminate one baking operation and get a clean finished job, as the Synpex air-dries dust free in the same time as ordinary lacquer."

New Luminous Paint Is Non-Poisonous

"Dialux" is a new luminescent paint, the principal element of which is sulphur of calcium, a phosphorescent salt.

Sulphur of calcium has this peculiar quality, that after having been exposed to natural or artificial light, even for a very short space of time, it gives off, in the dark, a luminosity which lasts for 12 hours. The glow is very brilliant during the first 15 to 20 minutes following the exposure to light, then gradually fades away. Dialux paint is permanent. The luminescence of painted articles can be restored time and again by simply repeating the exposure to light. In other words, the sulphur of calcium acts as an accumulator of light. Like every accumulator, after 16 hours the sulphur of calcium can be considered as discharged, but on being reexposed to light for a few seconds (20 to 30) it will recharge.

Dialux does not contain any radioactive matter; is not inflammable, nor toxic. It can be applied on everything and everywhere—on metal, glass, cloth, paper, wood, hard rubber compositions . . . is made in two varieties: 1) for brush application (resin carrier); 2) for air gun spray application (enamel carrier). Both varieties dry quickly, and are of very high mechanical resistance; is not destructive but protective.

The chief value of Dialux consists in indicating the position of objects in complete darkness.

New . . .

Hi-Speed KROMFLEX PRIMER

Air Dry and Baking

"*Industrial Finishes of Quality*"

Adheres perfectly on any smooth ferrous or non-ferrous metal and is permanently flexible under either Lacquer or Synthetic Enamels.

An excellent air dry primer for thin gauge metal where baking might cause trouble in warping.

Adapted to quick finishing schedules in Auto Repairing Shops where in emergencies it can be coated with Lacquer in a few minutes without danger of "lifting."

Will bake as high as 350 degrees Fahrenheit.

Has exceptional anti-corrosive properties and remarkable durability. Salt Spray and Humidity do not affect it. *Made by*

Indianapolis *Paint & Color Co.*

Indianapolis, Indiana

BETTER FINISHES at BIG SAVINGS

with Paasche AIRRUBBING AND AIR-SANDING MACHINES

F707 *Superior Airrubbing Machine*

Showing two pad assembly

CUT your rubbing, polishing and sanding costs; spare your employees that fatiguing labor; secure finer finishes—with Paasche Airrubbing and Airsanding Machines. Easy to handle, well balanced, free from vibration, give years of uninterrupted service without breakdowns or repairs. For pumice slush, felt or sandpaper. Used by leading industrial manufacturers everywhere. Write for technical bulletin giving full details of savings possible with Paasche Airequipment.

Paasche Airbrush Co. 1917 DIVERSEY PARKWAY CHICAGO, ILL.

Style Color Cards

In your editorial of the December, 1934, issue of INDUSTRIAL FINISHING, you mention the fact that, "The first cards of new colors for the Spring season were recently issued by the Textile Color Card Association of the United States." As we are always interested in the latest development in colors and color combinations we would appreciate any information you can give us regarding the proper method to proceed in order to obtain one of these color cards.—B. F. Co. (Built-in Furniture & Fixtures).

The Textile Color Card Assn., 200 Madison Ave., (at 36th street) New York, N. Y., offers two kinds of color cards for the 1935 Spring season. One shows 48 colors portrayed in woolen fabric ($3.75 in advance) and the other shows 60 colors portrayed in silk fabric ($4.00 in advance). Quoting from information printed on the back of a silk-color-card order blank:

"There are two kinds of color cards, Standard and Season. This order blank is for a Season card —the 1935 Spring Season. It contains 60 colors, all of which are shown in piece-dyed silk fabric. In addition to distinctive light tints captioned 'The Regency Pastels', and strong brilliant hues featured as 'Peasant Colors', the card portrays significant new developments in basic shades.

"Because of the importance of the 2-color and 3-color combination movement in fashion, the tones have been especially arranged on the card to suggest smart harmonies and contrasts, as easily visualized through our black color masks.

Questions « Answers

"Colors for the Woolen Industry are issued separately on the 1935 Spring Season Woolen Color Card of America. The card contains 48 fashionable colors portrayed in woolen fabric.

"The purpose of these season cards is to show in advance the most popular and best selling colors for Spring and Summer, 1935.

"The Season cards supplement the Standard card, which contains 192 staple colors.

"The Association also issues the Standard and Seasonal Hosiery Cards; also the official Shoe and Leather Colors.

"Our Cards are sold for the benefit of industry and trade, and not for profit.

"Owing to the nature of our transactions, which consist of thousands of small individual items, the opening of accounts is not practicable. Check must accompany order. Cards cannot be exchanged."

Friction Polish Finish for Turnings

I have heard and read something about finishing and polishing turnings in a lathe, but I want to know something more specific about it.

At the present time I am doing but little in wood toys. A while ago I had some ¾-in. maple dowels 24-in. long to finish. These

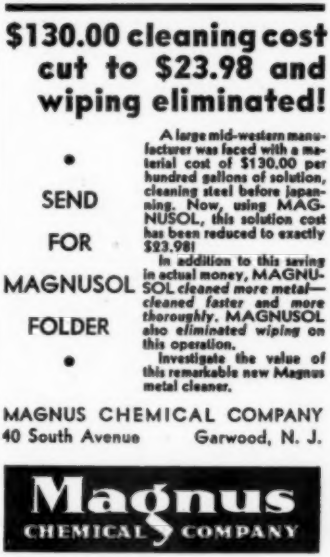
were sanded, stained and given a coat of shellac in the lathe. When dry they were sanded lightly and given a rub with shellac on a cloth, while rotating in the lathe.

When I read a question and answer about "Wax-Polishing Fir Handles," in July, 1934, issue, pages 45 and 46, I thought that perhaps the friction polishing referred to could be used for this work, in case I should have more of it. If I should have an order of sufficient size I will try the squeegee method which was described.—B. A. J. (Turning Shop).

This process is used to a great extent in wood-turning plants as a final finish on dowels, handles, baseball bats—in fact any turnings from short tool handles to long broom and brush handles. The process can be applied to different classes of finish such as stains, fillers and lacquers.

The finishing material—either shellac or clear lacquer—is applied by "friction speed" in a lathe running at the rate of 3000 r.p.m. With care and practice a high grade polished finish can be obtained in a short time.

The tool or vehicle used for applying the finish is called a "polishing bob," which is nothing more than a piece of cheesecloth or fine white cotton cloth folded in the shape of a ball, with a filling of cotton waste, drawn tight and tied with a string—the size depending on the articles to be finished. For small dowels, say ¾ to 1-in. in diameter, make a bob about 2-in. in diameter. Apply a small quantity of the finishing material to the face of the bob. Do not put on too much, as this will cause the finished surface to show ridges.


$130.00 cleaning cost cut to $23.98 and wiping eliminated!
SEND FOR MAGNUSOL FOLDER
A large mid-western manufacturer was faced with a material cost of $130.00 per hundred gallons of solution, cleaning steel before japanning. Now, using MAGNUSOL, this solution cost has been reduced to exactly $23.98!
In addition to this saving in actual money, MAGNUSOL cleaned more metal—cleaned faster and more thoroughly. MAGNUSOL also eliminated wiping on this operation.
Investigate the value of this remarkable new Magnus metal cleaner.
MAGNUS CHEMICAL COMPANY
40 South Avenue Garwood, N. J.
Magnus
CHEMICAL COMPANY

MARVELOUS NEW PAINT SPRAY GUN

Handles all types paint, lacquer, etc., especially the new synthetic enamels. Lighter in weight, widest spray, perfect atomization; air purifiers, 5 and 10 gallon pressure outfits, accessories, etc.

Write for Catalog.

The Alexander Milburn Company 1402 W. Baltimore St. Baltimore - Maryland

The most efficient compressor in its size—
regardless of price

This improved AIR-O-MATIC develops 3 cubic feet of free air and will operate any low pressure gun continuously.

Storage Tank 10 x 20-in.: Weight 85 lbs. Easy to handle. Will maintain maximum pressure of 50 to 70 lbs.

This is a well built, thoroughly reliable compressor which has been made and sold for over six years. Write today for price and full details.

UNIVERSAL MFG. CO.
324 W. 10th St. Indianapolis, Ind.

After applying the liquid finishing material (either shellac or lacquer) to the bob, drop on a few drops of machine oil; then proceed to finish and polish the dowels. Do not use too much pressure; try to maintain an even pressure back and forth the full length of the dowel. As the bob becomes dry, add more finishing material and oil; the oil acts as a retarder and adds elasticity to the shellac or lacquer. Care should be taken to avoid adding too much oil, as it will cause the finish to become "cheesy" and roll up; it requires but a few applications to obtain a high grade polished finish.

This speed friction can also be used to produce a dull rubbed effect or wax finish on turnings that are coated with shellac or gloss lacquer. Instead of using the bob, use a small wad of No. 2/0 or No. 3/0 steel wool, with a small amount of automobile or furniture polishing paste.—J. E. GREENE.

Several Answers

EDITOR'S NOTE: The following replies to four inquiries, published in February and March issues of INDUSTRIAL FINISHING, are submitted by J. E. Greene, Consultant on Finishing Problems. Business names and addresses are not given here, but will be supplied by letter by Mr. Greene, who can be addressed in care of this office.

For Galvanized Sheets

Refer to February issue, pages 4 and 6, inquiry entitled "To Treat Galvanized Sheets for Paint," by T.T.J.Co. (Iron Roofing).

The average acid treating to

neutralize the greasy and acid film, if properly done, is bound to leave a dark surface. None of these treating vehicles can be mixed with paint to be applied to the sheets.

I would refer you to a special galvanized-iron paint which has the following physical characteristics:

Colors—Gray, black, reddish brown and red oxide.
Drying time—Six to eight hours.
Resistance to the elements—Excellent.
Flaking or peeling—None.
Finish—Gloss.
Covering capacity—About 500-sq.ft. per gallon, one coat.
Application—Brush or spray.
Thin with benzine.
Contains no alkali or acid that will react with the metal.

If you are considering coating your sheets by the roller coating machine process, the paints will have to be specially formulated for this process, which can be taken care of by the manufacturer.

One-Coat Dip Enamels

Refer to February issue, page 6, inquiry by D.S.L. (Turned & Shaped Woodwork).

For this class of work I have in mind a toy enamel that has excellent hiding and coverage power in one coat. It has the following qualities:

Finish—High Gloss.
Non-skinning; non-settling; very finely ground.
Air-drying time—2½ hours.
Baking time—25 minutes at 200°F.
Heavy body; thin with substitute turpentine.
Can be used on wood or metal.
Gives a very hard mar-proof film with a mirror-like finish.

Anti-Rust Coating

Refer to February issue, page 6, inquiry by O. Machinery Co.

I would refer you to a product on the market which has the following characteristics:

Color—Clear, pale.

ALUMINUM VEHICLES
for SPECIAL INDUSTRIAL DIPPING and BAKING APPLICATIONS

THOMPSON Aluminum Vehicles for these special applications are, of course, custom tailored to individual requirements. If you have such a problem we will be glad to put our special knowledge in this field at your disposal.

THOMPSON & COMPANY
Since 1847
Industrial and Technical Paints, Enamels and Varnishes
P. O. Box 557 N. S. Pittsburgh, Pa.

M S A Half Masks

Four distinct types available, all with the famous U. S. Navy-Biggs design facepiece. Illustrated here, the new, light-weight M. S. A. PAINT RESPIRATOR HALF-MASK with Replaceable Cartridge . . . . . factory-loaded, affording uniformly low breathing resistance and high protective efficiency . . . renewable in a few seconds . . . assuring complete protection against the gases and fumes met with in paint-spraying, such as Benzol, Amyl Acetate, etc. — as well as fine particles of the pigments.

For complete information and prices on all M.S.A. Half-Masks, write for Bulletin EM-1.

MINE SAFETY APPLIANCES CO.
Braddock, Thomas & Meade Sts.
PITTSBURGH PENNA.

THE NEW AIRFLO OUTFITS

operate without oil!

More Air

Less Attention

Five outfits in ¼, ½ and ½ H.P. sizes . . each one expressly designed to give you exactly what you want in equipment.

The New No. 17 Crown Gun—A splendid finishing gun, with high-priced features . . at low cost. Write for full details on this new equipment.

CROWN SPRAY GUN MFG. CO.
1218 Venice Blvd. Los Angeles, Calif.

Drying time—12 to 24 hours, or may be baked for one to two hours at 275° to 300°F.
Application—Brush, spray or dip.
Finish—Gloss.
Rust, acid and alkali resistance.
If two coats are required, allow 24 hours between coats.

Machinery Enamels

Refer to March issue, page 4.

There is a line of machinery enamels on the market which have excellent qualities, as follows:

Colors—Black, gray, green or matched to any color.
Drying time—4 to 6 hours.
Resistant to—Gasoline, oil, steam, high temperature, acid solutions, alkali solutions.
Finish—High gloss.
Hiding—Solid.
Adhesion—Excellent.
Brine resistance—Excellent.
Non-fading.
Covering—600-sq.ft. per gallon.
Before applying this material, all surfaces must be free from oil or grease.
Results—A very hard but elastic finish; withstands a great deal of abuse; will not lose its luster.

Rusty-Surface Paint

I have just read in INDUSTRIAL FINISHING that a primer is on the market which may be applied over rusty surfaces without removing the rust. They claim that it is so formulated as to penetrate and make the rust particles act as a pigment in the paint.

Kindly give me your opinion on this for practical work. Is there any of this paint that will penetrate the old paint, rust and scale that is found on the exterior of large tanks such as used by the oil companies for the storage of gasoline, oil, etc.? — C. F. B. (Spray Painting; Waterproofing).

Yes, there are a number of brands of material suitable for this purpose. (The names and

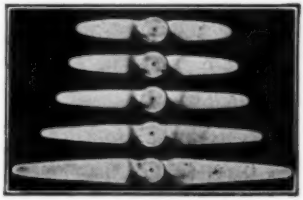
addresses of manufacturers are being sent you in a personal letter). We have used two of them; both are thin, almost clear liquids —slightly amber colored. They penetrate the rusty surface and form a very thin protective sealer which dries rather quickly and serves as an excellent base for follow-up coats of paint, enamel, varnish or lacquer. Their purpose is to penetrate and seal the surface so effectively that, after a good paint or enamel has been applied, all air and moisture will be excluded and, therefore, the progress of the rust will be arrested. Without this rust-checking treatment, more rust would continue to form under the paint or enamel films.

Reasonable care and judgment must be observed, however, if you expect permanently satisfactory results. It is too much to expect to get by with an application of this treatment over old paint and rust scale which could be easily removed by scraping, wire-brushing or sandblasting. All easily removed surface rust and scale should be taken off first — not down to the bright metal but to the rust that's tightly and firmly attached to the metal.—THE EDITOR.

Waterlox Book of Customers' Letters

A bound book containing nearly 100 facsimiles of letters and telegrams from concerns that have purchased and used Waterlox (the clear waterproof preservative treatment for interior and exterior canvass, textiles, woodwork, metalwork, marble, concrete, etc.) has been prepared for limited distribution by Waterlox, Inc., of Detroit, Mich. The contents of these letters reveal the uses and merits of Waterlox, which can be used as "straight" or mixed with paints.

Aeroplane Type Exhaust Fan Propellors



16-in. (requires ¼ hp. motor at 1725 rpm.) $4.00
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Telephone.....Riley 6771

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EDITORIAL

How They Stepped Up Production—and Why

If you are lucky enough to be in an "up-swing industry" with a restyled improved product that's being pushed with sound advertising and aggressive sales efforts, you can appreciate being confronted with the problem of speeding up production to take care of increased orders.

One of the large manufacturers of electric refrigerators had this experience recently — had to increase plant output considerably to take care of a bigger volume of business. In the metal cleaning department the cleaning process was changed to include the use of automatically controlled conveyors and hoists for dipping parts into cleaning, rinsing and bonderizing tanks, following with drying and wiping.

In the finishing department more men were added on the line, more hooks were placed on conveyors, conveyors were speeded up and oven temperatures were increased—all of which resulted in swelling the output of refrigerator cabinets per day.

With its present modern equipment and processes functioning smoothly and rapidly there is a quick turnover of materials in this plant. For example, in exceptional cases, steel sheets have been shipped out as parts of finished refrigerators within 24 hours after they were received at the plant.

Light Maple Coming in; Light Colored Woodwork

Maple furniture is very much the vogue in the New York market. Several of the largest department stores are featuring what they call "Maple Houses," with several rooms furnished in maple, and also displays of maple furniture in the furniture departments. They have departed entirely from the older maple finish of a darkish hue or reddish tone; now the finish is in the natural or honey tone color. The styles of the different pieces are largely Colonial and Early American periods for maple; some are rather severely plain and simple, the beautiful wood and finish providing the decorative feature.

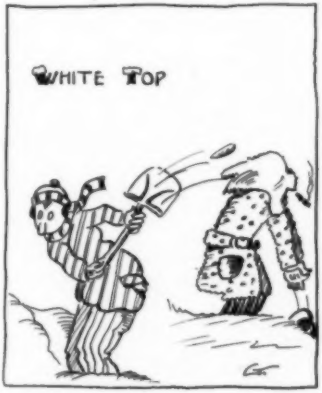
The large department store, Lord & Taylor, which is always one of the most beautifully and tastefully decorated and lighted stores in New York City, is refinishing street-floor showcases in light wood tones, acting on the belief that light wood tones are conducive to more effective displays. Bases and trays are also being elevated to provide better visibility.

Stylish Products Demanded for Redecorated Rooms

Style in design, finish and color treatment is taking on added importance for all manufactured products, especially those used in homes, offices and various public buildings. Right now there is an increasing amount of modernizing and redecorating of rooms going on, particularly in the places of business that strive to attract the public, and much of this work is along daringly modern lines.

Naturally, furnishings and accessories are wanted which will be in harmony with the new style interior architecture and decorative treatment. Utility value becomes almost a secondary consideration. In the search for something new or for suggestions to snap up the appearance of items that are not actually new, the matter of stylish lines, modern texture and up-to-the-minute color effects are of paramount importance.

Satisfying these typical demands is creating considerable new business for the lucky manufacturers and dealers who have really stylish merchandise . . . and it is making business for custom finishers and decorators who can restyle and redecorate certain products to make them harmonize with new or redesigned surroundings.



Clean-up and Fix-up the Shop, Too

Clean-up, fix-up, paint-up activities can be profitably extended to industrial establishments which so often suffer from gross neglect and indifference in so far as appearances are concerned, both outside and inside the building. Finishing departments, especially, should be cleaned-up, fixed-up and, if possible, painted—if the interiors needed it. Why? To give better light, make it easier and more certain to keep the work in process clean, to furnish a more powerful and permanent incentive for foremen, workmen and helpers to be really interested in shop cleanliness, better workmanship and safety at all times; to improve the workmen's mental attitude in regard to their place of work and the job they are doing, to make the place safer from ac-

cidents or the starting of a fire, to make a more favorable impression upon every visitor to the plant.

You can call to mind several other reasons for having a cleaned-up, fixed-up, painted-up finishing department. These reasons may appear to be intangibles, but they are the means of positively accomplishing really tangible results. In this era of new competition, with the appearance of a product counting for so much in sales, every finishing department should be tooled up for speed and economical production.

Interest the Fault Finding Type of Workman

While every finishing foreman and superintendent appreciates how annoying it is to get along with the fault-finding, blame-shifting type of workman, he must also recognize the fact that sometimes workmen's complaints are justified. It isn't impossible for certain equipment or materials or methods to be at fault or unsuitable for the work at hand and therefore the cause of unsatisfactory results on some finishing jobs. So many things can happen to cause trouble in a finishing room that everyone in the department needs to be continually on the alert if the work is to go forward smoothly and economically.

Even though the man in charge does understand the details of everything having to do with the work, he needs the cooperation of all men under him. He can not afford to always ignore their complaints, wishes or suggestions. What he can profitably do is to delegate a share of responsibility to each workman. Encourage each man to discover what is responsible for any poor work or unsatisfactory conditions, and suggest what can be done to remedy it.

If the man who finds fault can be encouraged to do some constructive thinking and then be given the opportunity to suggest or make whatever change is necessary to remedy the condition, he can often be "built up" to the point where, instead of being an annoyance to his boss, he will be of real value to the entire organization.

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DuPont Appoints Western Regional Manager

E. I. du Pont de Nemours & Co. announces the appointment of G. A. Biesecker as western regional manager in charge of the Finishes Division of the Fabrics & Finishes Department, with headquarters in Chicago, Ill. He succeeds L. P. Nemzek, resigned. The appointment became effective March 1. Mr. Biesecker was formerly manager in charge of dealer and paint sales in the Chicago territory. He has spent the greater part of his life in the paint business, and is well known to the trade.

Spring Furniture Show in Chicago, May 1 to 8

The spring market at the American Furniture Mart, Chicago, will be held May 1 to 8, inclusive. The opening was moved up from May 6, the opening tentatively selected at the meeting of the Furniture Mart's

board of governors last January, in order to bring the market into the first week of May—the traditional period for spring exhibitions at Chicago—and to arrange the dates of all the various market centers in unison for the convenience of buyers wishing to make their market trips in one week.

Sixty Years of Progress

The above is the title of an attractive illustrated booklet of 16 pages between heavy paper covers, dealing in a strikingly original manner with the founding and development of The Lawrence-McFadden Co., (manufacturers of wood finishing materials) 1400 Frankford Ave., Philadelphia, Pa. The booklet was planned and produced by H. Arthur Engleman (Advertising) Philadelphia, Pa.

Portable Cleaning Machine

The Bruer Electric Mfg. Co., 835 Blackhawk St., Chicago, Ill., has prepared for distribution an attractive 4-page circular describing and illustrating various uses and adaptations for the Tornado portable electric blower which can be used for either blowing or suction, according to the requirements of the industrial cleaning job. Used as a blower, the Tornado delivers a 275-mile-per-hour blast of clean dry air. The enclosed fan is mounted on the shaft of 1-h.p. ballbearing motor. Total weight, 14-lbs.

Devoe & Raynolds Expansion

Devoe & Raynolds Co. has recently completed the largest expansion along technical and chemical lines in its history, which spreads over a period of 181 years. In addition to expanding and re-equipping the five former laboratories, a large new laboratory for research and development work has been added in Louisville, Ky.

Doctor J. S. Long, Chemical Director, was formerly a professor at Lehigh University for many years and during that time he carried on extensive and varied research and development work for a number of prominent companies, including the N. J. Zinc Co., Armstrong Cork Co., Raybestos Co., etc. During the last eight years, Doctor Long was Research Director for the Archer-Daniels-Midland Co., in addition to being Chairman of the Paint and Varnish Division of the American Chemical Society. At present he is Chairman of the Advisory Committee of the Forest Products Laboratory.

Classified Advertising

Advertisements under this heading 45 cents a line per insertion, minimum charge, $1.35. In estimating, calculate six words to one line, and add one additional line for heading. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

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HERE is the first authoritative handbook of its kind, containing much information that has never before been published. You will find between its covers facts, processes, and formulae that have been considered secret by many japanners.

The author has actually been doing this work for others for many years and he knows whereof he speaks. No one has ever gone into the subject of metal finishing more deeply than he nor has the subject ever been explained so clearly and effectively. This book was eight years in preparation.

Color plates and a multitude of tables and illustrations make the text even more clear and understandable. The volume is bound in harmony with its companions of the Practical Finishing Series and makes a rich, attractive appearance . . . 22 chapters.

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Index to Advertisers

Advance Paint Co. ..... Third Cover
Ault & Wiborg Corp. ... Front Cover

Berry Brothers 35
Beugler Mfg. Co. ....
Binks Mfg. Co. 25

Classified Advertising 55
Commercial Solvents Corp. 7
Crown Spray Gun Mfg. Co. 50

Day & Co., James B. 21
DeVilbiss Co., The 8
Dolan & Co., V. J. 41
duPont DeNemours & Co., E. I. 28-29

Egyptian Lacquer Mfg. Co. 37
Franklin Paint & Varnish Co., Benjamin ....

Glidden Co., The 5

Hilo Varnish Corp. 1
Hommel Co., Inc., The O. 54

Impervious Varnish Co. 47
Indianapolis Paint & Color Co. ... 45

Larkin Co., Inc. ....
Lilly Varnish Co. ..... Back Cover

Maas & Waldstein Co. 33
Magnus Chemical Co. 47
Milburn Co., Alex 48
Mine Safety Appliance Co. 50

Paasche Airbrush Co. 45

Revolite Corp., The 49
Rockford Varnish Co. 17
Roxalin Flexible Lacquer Co. ..... Second Cover

Sherwin-Williams Co. ....
Stanley Chemical Co. ....
Stille-Young Corp. 27

Thompson & Co. 49

Universal Mfg. Co. 48-51

Valentine & Company ....
Varnish Products Co. 41

Zapon-Brevolite Lacquer Co. 2
Zapon Co., The 2